APPENDIX IV. APPRAISER'S QUALIFICATIONS

Evlon Charles

Director

EXPERIENCE SUMMARY

Evlon Charles is a Director within the Valuation & Business Analytics practice of BDO in Houston. He has over 10 years of professional experience performing business valuations for both tax planning and financial reporting purposes in accordance with United States Generally Accepted Accounting Principles (GAAP). His valuation experience includes valuation analyses for purchase accounting, goodwill impairment, tax restructuring, acquisition pricing, as well as providing strategic decision support related to transactions. Evlon has significant experience valuing businesses, underlying intangible assets, liabilities, financial instruments, including equity and debt interests.

Evlon has experience in the oil and gas industry, including valuations of upstream oil and gas reserves and valuations within oilfield services, engineering and construction, water and power utility segments. Evlon also has significant experience with valuations within the financial services sector including: the commercial banking, insurance and asset management industries. Within the energy and financial services sectors, Evlon has valued intangible assets including, but not limited to: customer relationships, trade names and brands, internally developed software, non-compete agreements, patents, core deposit intangibles, distribution agreements, purchased credit card relationships and indemnification assets. He has also valued financial instruments including, but not limited to: loan portfolios, company debt, trust preferred securities and FHLB Advances.

Prior to joining BDO, Evlon worked at KPMG LLP's Economic and Valuation Services practice in Chicago as well as in KPMG's Department of Professional Practice in New York. He most recently worked at Ernst and Young LLP's Transaction Advisory Services practice in Houston. He has also worked within the commercial banking sector in the Caribbean and in the United Kingdom.

EDUCATION

B.Sc., Economics and Management, University of the West Indies
MBA, Finance, Rice University - Jesse H. Jones Graduate School of Business

Matthew Goldberg

Principal

EXPERIENCE SUMMARY

Matthew Goldberg is a Principal in the Valuation and Business Analytics group of BDO and leads the group's Financial Services, Complex Financial Instruments, and Hard-to-Value Assets Practice. Having more than 15 years of advisory and financial services experience, Matthew brings his institutional experience when working with client to provide advisory services that achieve a range of business and strategic objectives. In addition, to providing valuation services, his practice provides model validation, risk management, and asset liability management consulting services.

Matthew has extensive experience valuing a wide range of debt products and complex financial instruments including contingent consideration, cryptocurrency, adjustable stock options and warrants, restricted stock units, performance-based shares, convertible debt instruments, and other hedging instruments such as interest rate swaps and put/call strategies.

He has been involved in numerous engagements including assisting management in strategic planning, performing projects for financial reporting and tax reporting, and providing advisory services related to mergers and acquisitions.

Matthew has worked on numerous valuation assignments for purposes of ASC 718 and ASC 805 intangible asset valuation and purchase price allocations, ASC 350 goodwill impairment analyses, and international tax valuations.

Prior to joining BDO, Matthew worked in a Big Four Firm's Transaction Advisory Services Practice providing valuation services. His experience includes providing consulting services for buy- and sell-side transactions, investment banking, pre-acquisition due diligence, and business interruption analyses.

EDUCATION

M.B.A., Global Finance and French, Thunderbird School of Global Management
B.S., Finance, Colorado State University

Luis Llontop Barahona

Senior Manager

EXPERIENCE SUMMARY

Luis Barahona has diverse experience in the valuation of closely held businesses and limited partnerships. He has performed valuation work for corporate planning, tax and estate planning and sales of business interests in several industries, including healthcare, automotive, manufacturing, technology and restaurants. He is a senior manager at BDO and he is involved in managing business valuation engagement for diverse purposes, including financial reporting, estate tax planning valuation and mergers and acquisitions. In addition, Mr. Barahona assists the TAS team with due diligence engagements, including the preparation of Quality of Earnings Databooks.

Previously, Mr. Barahona was the Head of Equity Research for a prestigious Peruvian investment bank in Peru. In this position, he performed business valuation for public companies in the Mining, Brewing and Energy sectors. He was also involved in primary and secondary offerings of equity and fixed income instruments in the Peruvian Stock Market.

Mr. Barahona was a valuation manager at Jordan Castellon Ricardo P.L. (“JCR”) His responsibilities included management, planning, execution and review of engagements related to business valuation. He was responsible for JCR’s in-house continuing education regarding business valuation matters. Prior to joining JCR, Mr. Barahona was a supervisor in charge of Business Valuations at Morrison, Brown, Argiz & Farra LLP (“MBAF”). Prior to joining MBAF, Mr. Barahona was a Senior Associate with Healthcare Appraisers, Inc. a specialized healthcare valuation firm.

PROFESSIONAL AFFILIATIONS

- Board Member of the American Society of Appraisers (ASA) – Miami Chapter
- Member of the National Association of Forensic Economics
- Member of the New England Business Council
- Member of the Financial Planning Association of Miami – Dade
- Member of the Association of Latino Professionals in Finance and Accounting – Miami Chapter

EDUCATION

Mr. Barahona received his Master’s in business administration degree from the William E. Simon School of Business Administration – University of Rochester in 2002. He earned his bachelor’s degree in science and Engineering from the Pontifical Catholic University of Peru. Recent seminars include the FICPA valuation conferences.

Ben Tindall

Associate

EXPERIENCE SUMMARY

Ben Tindall is an Associate in the Houston office of BDO, supporting the Valuation & Business Analytics practice. William's business valuation responsibilities include purchase price allocation, goodwill impairment, business enterprise valuation, stock-option valuation, audit reviews of third-party analyses and the valuation of various intangible assets (e.g., developed technology, trademark/trade names, etc.) utilizing various forms of the income, market, and cost approaches.

EDUCATION

B.S., Finance, Louisiana State University

APPENDIX V. ECONOMIC AND INDUSTRY OVERVIEW

As part of our analysis, we considered economic factors that affect the Company and its industry, including those influenced by the general performance and outlook for the overall U.S. economy.

Economic Overview[5]

Gross Domestic Product

According to advance estimates released by the Department of Commerce's Bureau of Economic Analysis (the "BEA"), Real Gross Domestic Product ("GDP"), the output of goods and services produced by labor and property located in the United States, increased at an annualized rate of 2.0 percent during the third quarter of 2021 after increasing at an annualized rate of 6.7 percent in the second quarter of 2021. The increases in annualized GDP growth during the second and third quarters of 2021 follow an increase of 4.5 percent in the fourth quarter of 2020 and an increase of 6.3 percent in the first quarter of 2021. The following explanatory note regarding the increase in GDP during the third quarter is excerpted from the *BEA News Release* dated October 28, 2021:

The increase in third quarter GDP reflected the continued economic impact of the COVID-19 pandemic. A resurgence of COVID-19 cases resulted in new restrictions and delays in the reopening of establishments in some parts of the country. Government assistance payments in the form of forgivable loans to businesses, grants to state and local governments, and social benefits to households all decreased.

The full economic effects of the COVID-19 pandemic cannot be quantified in the GDP estimate for the third quarter because the impacts are generally embedded in source data and cannot be separately identified.

The annualized GDP increase of 2.0 percent during the third quarter of 2021 is below economists' projections for growth of 3.1 percent (*Wall Street Journal* Survey). GDP declined 3.4 percent during 2020, compared to growth of 2.3 percent in 2019 and 2.9 percent in 2018.

Exports decreased 2.5 percent in the third quarter of 2021, compared to a decrease of 2.9 percent in the first quarter and an increase of 7.6 percent in the second quarter of 2021. Durable goods expenditures decreased 26.2 percent in the third quarter of 2021 following an increase of 50.0 percent in the first quarter and an increase of 11.6 percent in the second quarter.

Economists expect GDP growth to continue into the next two quarters. A survey of economists conducted by *The Wall Street Journal* reflects an average GDP forecast of 4.8 percent annualized growth in the fourth quarter of 2021, followed by 4.2 percent annualized growth in the first quarter of 2022.

Economic Indicators

The Conference Board ("TCB") reported that the Leading Economic Index ("LEI"), the government's primary forecasting gauge, increased 0.2 percent in September, which follows increases of 0.9 percent and 0.8 percent in July and August, respectively. Over the six months ended September 2021, the LEI increased 5.4 percent. Traditionally, the LEI is thought to gauge economic activity six to nine months in advance. Consecutive moves in the same direction are considered to be indicative

[5] *The National Economic Review, Q3 2021 by Mercer Capital.*

of the general direction of the economy. Traditionally, the LEI is thought to gauge economic activity six to nine months in advance. Consecutive moves in the same direction are considered to be indicative of the general direction of the economy.

In response to the September reading, Ataman Ozyildirim, Senior Director of Economic Research at TCB, commented: “The U.S. LEI rose again in September, though at a slower rate, suggesting the economy remains on a more moderate growth trajectory compared to the first half of the year.” He added, “The Delta variant, rising inflation fears, and supply chain disruptions are all creating headwinds for the US economy. Despite the LEI’s slower growth in recent months, the strengths among the components remain widespread. Indeed, The Conference Board continues to forecast strong growth ahead: 5.7 percent year-over-year for 2021 and 3.8 percent for 2022.” Six of the LEI’s ten leading economic indicators increased during September 2021. The following table shows the changes among the indicators sorted by the greatest contributors to the monthly change.

Historical Business Cycles and Fiscal Policy Overview

The following table provides perspective concerning the National Bureau of Economic Research’s (“NBER”) business cycles dating from the Great Depression to the present. (The contraction period measures from the peak to the trough. The expansion period measures from the previous trough to the peak.) June 2019 marked 120 months (ten years) of expansion since the June 2009 trough, matching the previous record for the longest period of economic expansion in U.S. history, which occurred from March 1991 to March 2001. This expansion continued another eight months before ending with the 4.8 percent contraction in GDP in the first quarter of 2020. The NBER determined that a peak in monthly economic activity occurred in the U.S. economy in February 2020. The peak marked the end of the expansion that began in June 2009 and lasted a record 128 months, as well as the beginning of a recession. According to the NBER, this recession lasted two months, as the U.S. economy began to recover from the initial shock of the coronavirus pandemic in April of 2020. This makes the 2020 recession the shortest U.S. recession on record.

- The Congressional Budget Office (the “CBO”) announced an estimated $2.8 trillion budget deficit for fiscal 2021 (twelve months ended September 2021). This deficit was approximately $362 billion less than the deficit during fiscal 2020. According to CBO estimates, revenues in fiscal 2021 were approximately 18 percent higher than in fiscal 2020 and outlays were 4 percent higher.

  For much of the past two years, the U.S. and China have been embroiled in an ongoing trade dispute that was replete with contentious negotiations and the imposition of retaliatory tariffs. The U.S. and China signed an eight-part agreement comprising the first phase of the trade deal on January 15, 2020, effectively placing a hold on the two-year trade war that caused turmoil in global markets and hampered economic growth worldwide. While significant progress was made with the signing of the phase one deal, issues such as possible tariff reductions, favorable Chinese subsidies to domestic companies, and Beijing’s oversight of state-owned firms would be left to further negotiations. Key components of the phase one deal differed slightly from previously reported terms and included the following:

  - China will increase purchases of U.S. goods and services (excluding agricultural products) by approximately $200 billion over the next two-years, using 2017 as a benchmark. Key industries from which China will be purchasing goods include technology and energy;

- China will additionally purchase $32 billion of U.S. agricultural goods over the same two-year period;

- Language further enabling U.S. businesses to initiate a criminal investigation into the theft of trade secrets in China;

- The removal of barriers on U.S. banking institutions to enable U.S. banks, insurers, and other financial services companies to expand in the Chinese market;

- The creation of a dispute-resolution office aimed at fairly adjudicating disagreements between U.S. businesses and their Chinese partners;

- The U.S. cut the previously imposed tariff rate from 15 percent to 7.5 percent on roughly $120 billion of Chinese products. The deal leaves those tariffs in place, but former President Trump signaled a possible removal of those tariffs in forthcoming negotiations. The U.S. also canceled 15 percent tariffs on roughly $156 billion in Chinese consumer products that were set to go into effect in December;

- Chinese commitment to not devalue its currency or make persistent interventions in its currency market.

Joe Biden was elected as the 46th President of the United States in November 2020. Following his election, President Biden's specific plan to continue trade negotiations with China was unclear, but President Biden signaled throughout his campaign that he would work with allies to push China to follow international trade rules and uphold the terms of the agreement struck in January.

The U.S. and China began their first high-level meetings under the Biden administration in late March of 2021 in Anchorage, Alaska. The U.S. delegation, led by Secretary of State Antony Blinken, billed the two-day meeting as a chance for the U.S. and China to air divisive issues, deescalate their rivalry, and determine areas of cooperation. While no substantive progress was made during the talks, this did represent the first in-person meeting between the two parties in nearly eight months. Happening concurrently to these talks, Katherine Tai was confirmed as U.S. Trade Representative in a unanimous vote of the Senate on March 17, 2021. In an interview with *The Wall Street Journal* following her confirmation, Ms. Tai indicated that the U.S. had no intention of lifting tariffs imposed on Chinese goods by the Trump administration in the near future. The second quarter of 2021 saw relatively little movement in the ongoing trade dispute, though the two sides did meet virtually in late May. These meetings consisted of little more than Ms. Tai reaffirming the Biden administration's guiding principles as it pertains to the trade dispute and the Chinese delegation further calling on the U.S. to roll back the remaining tariffs on Chinese imports. During the third quarter of 2020, trade negotiations between the U.S. and China continued to stall, though business leaders did call on the Biden administration to resume talk and cut tariffs on imports in a letter to Ms. Tai and Janet Yellen.

On March 11, 2020, the World Health Organization ("the WHO") declared the outbreak of a novel coronavirus that originated in Wuhan, Hubei Province, China to be a global pandemic. COVID-19 is considered highly dangerous to vulnerable populations such as the elderly and/or those with pre-existing conditions and chronic ailments that compromise the human immune system. The first case of the novel coronavirus in the United States was confirmed in Washington state on January 21, 2020. The spread of the virus and its highly contagious nature became apparent in the U.S. and globally during the month of February. Beginning on February 24 and continuing through the

following week, in the first of several major inflection points shaping public sentiment surrounding the virus in the United States, U.S. equity market indices experienced their greatest weekly declines since October 2008 on fears of the detrimental economic effects of the continuing spread of the virus. COVID-19 continued to spread across the U.S. through the latter days of February and early March, compelling declarations of public health emergencies by state governors in affected areas. Additionally, the Federal Open Market Committee (the "FOMC") cut the benchmark interest rate by fifty basis points on March 3 in an effort to support the economy in anticipation of the detrimental effects of the virus on economic activity.

In another major inflection point, the Centers for Disease Control mandated the cancellations and postponements of public and private events of more than fifty people for at least eight weeks on March 15. Through the balance of March, state and municipal governments issued various "stay-at-home" and "shelter-in-place" orders, requiring many businesses deemed "non-essential," such as restaurants, theaters, and small retail, to either close or materially alter operations. Major market indices continued to fall through the end of March. For reference, the S&P 500 closed at 2,585 on March 31, down approximately 24 percent from its all-time high of 3,386 on February 19.

The outbreak of COVID-19 in the United States and abroad spawned a public health crisis and substantial economic disruption for many American businesses and individuals in 2020. Through the end of the second quarter of 2021, Congress had enacted six separate pieces of legislation aimed at managing the pandemic and mitigating the economic burden placed on families and businesses. These legislative actions and the dates on which they were enacted into public law are summarized in the sections below:

- H.R. 6074, Coronavirus Preparedness and Response Supplemental Appropriations Act – March 6, 2020: Legislation enacted that provides $8.3 billion emergency funding for public health agencies and coronavirus vaccine research. The bill appropriated $7.8 billion in discretionary funding to federal, state, and local health agencies and$500 million in mandatory spending through changes to Medicare.

- H.R. 6201, Families First Coronavirus Response Act – March 18, 2020: Legislation enacted that provides $192 billion in funding through various components to those in need. These components include the enhancement of unemployment insurance benefits, increased federal Medicaid and food-security spending, mandates requiring certain employers to provide paid sick, medical, and family leave, and free coverage for coronavirus testing under government health programs.

- H.R. 748, Coronavirus Aid, Relief, and Economic Security (CARES) Act – March 27, 2020: Legislative relief package totaling approximately $2 trillion to address the near-term economic impact of the virus on American families and businesses. Key items in the legislation include the following:

  - $500 billion in financial assistance for distressed sectors of the economy and sectors deemed critical to national security. Approximately $450 billion of this funding supported loans to businesses, states, and municipalities through a new Federal Reserve lending facility.

  - Approximately $380 billion in economic support for small businesses, which will largely be used for the creation of the Paycheck Protection Program ("the PPP"). The PPP offered loans to small businesses to help them avoid laying off workers. The portions of

these loans spent on payroll, rent, or utilities will be eligible for forgiveness.

- Direct payments to taxpayers on a graduated scale for those earning annual income up to $99,000 ($198,000 for married couples). Taxpayers with annual incomes up to$75,000 ($150,000 for married couples) will receive payments of $1,200. These payments will gradually phase out up to the annual income cap of $99,000. Families are also eligible to receive $500 per qualifying child. Estimated provision of approximately $290 billion.
- Further expansion of unemployment benefits, extending unemployment insurance by thirteen weeks, boosting benefits by up to $600 per week for four months, and expanding eligibility requirements. Estimated cost is approximately $270 billion.
- Direct federal aid to hospital and healthcare workers of approximately $150 billion. This funding was provided to help hospitals, community health centers, and other healthcare providers prepare for and respond to the pandemic.
- § Various tax incentives, including provisions allowing businesses to defer payroll taxes, which act as key sources of funding for Medicare and Social Security. Another key provision allowed individual taxpayers to use business losses in recent years to offset nonbusiness income.

• H.R. 266, Paycheck Protection Program and Health Care Enhancement Act – April 24, 2020: Bill providing an additional $383 billion in economic support for small businesses ($321 billion to replenish the PPP), $75 billion in funding for hospitals, and approximately $25 billion to fund greater COVID-19 testing capacities.

• Consolidated Appropriations Act – December 27, 2020: Legislative package delivering$868 billion of federal support to mitigate the economic impact of the COVID-19 pandemic. Key items in the legislation include the following:

- $302 billion in aid to small businesses. Allows businesses to receive a second round of PPP loans and ensures that this assistance will not be taxed.
- Direct payments to individuals earning up to $75,000. Taxpayers with annual incomes up to $75,000 will receive a payment of $600, with an additional $600 for each dependent child.
- Increased unemployment benefits of $119 billion. Adds $300 more per week to unemployment benefits, continues “gig” worker eligibility for unemployment, and lengthens the maximum amount of time a worker can receive unemployment benefits to 50 weeks.
- Aid for schools of $82 billion. This funding provides grants primarily to public K-12 schools, with a portion set aside for grants directed to higher education.
- Health specific measures of $78 billion. Included is $29 billion for the procurement and distribution of coronavirus vaccines and $22 billion for testing, tracing, and mitigation of coronavirus.
- Other measures of $123 billion. The legislation also includes funding for transportation, increased food stamp benefits, additional rental assistance, and other programs.

Inflation

According to the Bureau of Labor Statistics ("BLS"), the Consumer Price Index ("CPI") increased 0.4 percent in September 2021 (on a seasonally adjusted basis) after increasing 0.5 percent in July and 0.3 percent in August. The unadjusted CPI stood at 274.31 (CPI-U all urban consumers, 1982-1984 = 100), an increase of 5.4 percent over the previous twelve months. The Core CPI, which excludes food and energy prices, increased 0.2 percent in September, and Core CPI increased 4.0 percent on an unadjusted basis over the previous twelve months.

The Producer Price Index ("PPI") is generally recognized as predictive of near-term consumer inflation. The PPI for total final demand (seasonally adjusted) increased 0.5 percent in September 2021 following increases of 1.0 percent and 0.7 percent in July and August, respectively. The PPI for final demand excluding food, energy, and trade services increased 0.1 percent in September. On an unadjusted basis, the twelve-month change in the total final demand PPI was an increase of 8.6 percent through September 2021, which is the largest advance since 12-month data were first calculated in November 2010. The increase in the PPI was below projections made by economists surveyed by *Reuters*, which forecasted an increase of 0.6 percent in the PPI in September.

Oil and Gasoline

In the first quarter of 2020, oil prices fell dramatically as the travel restrictions due to the ongoing coronavirus pandemic depressed demand for oil. U.S. crude futures closed the quarter trading at $20.48 per barrel, down 66 percent over the course of the first quarter. Oil prices recovered in the second quarter of 2020, bolstered by the return of demand for fuel following the loosening of lockdown restrictions in the U.S., a slide in domestic production in the U.S., and an agreement between OPEC members reached in early April to cut output. In the third quarter of 2020, demand for gasoline in the U.S. was relatively stagnant, keeping U.S. crude oil prices around $40 per barrel for much of the quarter. U.S. crude oil prices ended the third quarter at just below $40 per barrel, down from a peak of just above $43 per barrel in late August. Brent crude futures also closed the quarter at approximately $42 per barrel and spent most of the quarter in the range of $40 to $43 per barrel. Oil prices ended the year with momentum, though global benchmarks still posted losses for the whole of 2020.

In the first quarter of 2021, oil prices gained approximately 20 percent. Aiding the gain in oil prices in the first quarter were a surprise announcement of production cuts by OPEC and extreme weather in Texas, which boosted demand for fuel and power and threatened production. Pricing gains were tempered by a spike in COVID-19 cases in Europe and renewed lockdowns, which hampered demand in global oil markets. Brent crude oil closed the second quarter of 2021 at $76.94 per barrel, a 16 percent increase from the closing price at the end of the first quarter. WTI closed the second quarter at $73.52 per barrel, a 24 percent increase from the end of the first quarter. Both benchmarks closed the quarter slightly below highs reached in 2018 on declining oil inventories both in the U.S. and globally. Consumer demand for energy products continued to recover in the second quarter with the ongoing loosening of travel restrictions domestically and abroad.

Oil benchmarks rose again in the third quarter of 2021, as the spot price for Brent crude oil closed the quarter at $77.81 per barrel and WTI closed the quarter at $75.22 per barrel. Brent was up 1.1 percent over its second quarter close, and WTI was up 2.3 percent. Demand for oil in the third quarter continued to recover at an increasing pace, as vaccine rollouts in developed countries continued to aid consumer and overall economic activity in a pattern seen in the first two quarter of 2021 as well. The pace of the recovery in demand was hampered in the third quarter by the rapid rise in prices seen over the course of 2021. Oil supply volume in the third quarter was impacted by a deal among

OPEC+ producers (OPEC members and Russia) that would raise production by 400,000 barrels a month from August 2021 through December 2021. In September, the volume of oil supplies worldwide was 97 million barrels per day, which was approximately 2.5 million less than global demand. Due to the impacts of Hurricane Ida on the U.S. Gulf Coast in late August and early September, 1.7 million barrels per day of U.S. production was suspended, contributing to the global supply imbalance in the third quarter.

The Baker Hughes North American (U.S.) total oil rig count increased 11.2 percent in the third quarter of 2021 after increasing 10.0 percent during the second quarter. The total rig count was up 98.5 percent over the last twelve months ended September 30, 2021. Brent crude oil, which is the global benchmark for oil prices, traded at an average of $74 per barrel in September 2021, which is $34 per barrel higher than the average for September 2020. The U.S. Energy Information Administration ("EIA") expects crude oil prices to average $81 per barrel in the fourth quarter of 2021 and $72 per barrel in 2022. The EIA estimates that U.S. crude oil production in 2021 will average 11.0 million barrels per day, with production rising in 2022 to 11.7 million barrels per day.

Retail Sales and Personal Consumption

According to the Census Bureau of the U.S. Department of Commerce, the advance estimates of U.S. retail and foodservice sales (adjusted for seasonal, holiday, and trading-day differences) for September 2021 increased 0.7 percent from the previous month and 13.9 percent relative to September 2020. Core retail and foodservice sales (which exclude motor vehicles and parts) increased 0.8 percent relative to the previous month and increased 15.6 percent relative to September 2020. In the third quarter of 2021, retail and foodservice sales decreased 0.7 percent relative to the second quarter and were 14.9 percent above the level observed in the third quarter of 2020.

Personal consumption spending represents approximately 70 percent of total economic activity and is a primary component of overall economic growth. Real personal consumption spending increased 1.6 percent in the third quarter of 2021 following increases of 11.4 percent and 12.0 percent in the first quarter and second quarters, respectively. According to the BEA, durable goods purchases decreased 26.2 percent in the third quarter of 2021 following increases of 50.0 percent and 11.6 percent in the first and second quarters, respectively.

The Financial Markets

The Dow Jones Industrial Average, NASDAQ, and broad market Wilshire 5000 posted slight losses in the third quarter of 2021, while the S&P 500 remained essentially unchanged (0.23 percent gain). The indices all posted month-over-month gains in July and August before retreating in September. During the third quarter, investors anticipated slower gains and more persistent volatility in markets based on a number of factors. Among these factors were signals by the Federal Reserve and other global central banks that pandemic-era stimulus measures may be coming to an end. Chinese property giant Evergrande Group skipped an $83.5 million interest payment in late September, sending shockwaves throughout the global financial community surrounding the prospect of a potential contagion event if Evergrande were to default on its massive amount of debt. Further, Congress remained embroiled in a battle during September over the Democrats' proposed $1 trillion infrastructure bill, progress on which was further impeded by a separate social policy and climate package proposed by Democrats. These and other points of contention and uncertainty caused investor sentiment to wane in September, leading to the quarterly losses. During the third quarter, the Dow Jones Industrial Average dropped 1.9 percent from its second quarter close, the S&P 500 gained 0.2 percent, the NASDAQ dropped 0.4 percent, and the broad market Wilshire 5000 Index dropped 0.6 percent.

The following provides a brief summary of each index's performance in the third quarter of 2021:

- The Dow Jones Industrial Average ended the third quarter of 2021 at 33,844. This represents a 1.9 percent decline for the quarter, following increases of 4.6 percent in the second quarter and 7.8 percent in the first quarter. The Dow was up 7.3 percent over the entirety of 2020 after increasing 22.3 percent in 2019.

- The S&P 500 Index ended the third quarter of 2021 at 4,308. This represents a 0.2 percent increase for the quarter, following increases of 8.2 percent in the second quarter and 5.8 percent in the first quarter. The S&P 500 posted a gain of 16.3 percent in 2020 after posting a gain of 28.9 percent in 2019.

- The NASDAQ Composite Index ended the third quarter of 2021 at 14,449. This represents a 0.4 percent decline for the quarter, following increases of 9.5 percent in the second quarter and 2.8 percent in the first quarter. During 2020, the NASDAQ rose by 43.6 percent after rising 35.2 percent in 2019.

- The broad market Wilshire 5000 Index ended the third quarter of 2021 at 44,850. This represents a 0.6 percent decline for the quarter, following increases of 8.1 percent in the second quarter and 5.8 percent in the first quarter. The Wilshire 5000 index was up 27.7 percent in 2019 and up 20.0 percent in 2020.

Treasury yields were generally stagnant during the third quarter of 2021, though yields on longer maturity instruments increased in September on the FOMC's signaling that it could begin to taper monthly bond purchases in November and raise rates in 2022. Bond prices display an inverse relationship with their respective yields and rise as yields fall. Additionally, bond prices can shift abruptly due to investor reactions to major variances in reported economic data versus market expectations (e.g., expected inflation, growth, monetary policy, and other Federal Reserve actions). Yields rallied to close the third quarter, bolstered not only by the FOMC news, but also by continued business reopenings, improving consumer demand, and falling coronavirus cases in the U.S. Still, over the course of the third quarter, monthly average yields on 10-year Treasury notes fell 15 basis points from the end of June to the end of September. The 10-year Treasury note closed the quarter at a monthly average yield of 1.37 percent in September. The spread between the 2-year and 10-year Treasury note yields narrowed to 113 basis points, down from 132 basis points at the end of the second quarter. Investors generally view the slope of the yield curve as an indicator of the direction of the economy. Steeper upwardly sloped yield curves imply higher inflation and greater future economic growth. The yield curve flattened slightly in the third quarter, as seen in the narrowing between the yields on 2-year and 10-year Treasury notes.

Economists surveyed by *The Wall Street Journal* anticipate yields to increase marginally through the end of 2021 (10-year note yield of 1.69 percent in December of 2021), before recovering towards levels seen in 2019 in the coming years (10-year note yield of 1.94 percent in June 2022 and 2.15 percent by December of 2022).

Monetary Policy and Interest Rates

During the first quarter of 2018, Jerome "Jay" Powell was named Chairman of the Federal Reserve, replacing Janet Yellen. Despite pressure and rhetoric from former President Trump aimed at keeping the target rate stagnant, the FOMC raised the target rate four times over the course of 2018, ending the year in a range of 2.25 percent to 2.50 percent. After leaving rates unchanged through the first half of

2019, the rate cuts alluded to in previous meetings by Fed officials materialized in the third quarter of 2019, as eight of ten Fed officials voted to lower the benchmark rate by a quarter-percentage point to a range between 2.00 percent and 2.25 percent at the July meeting of the FOMC and again at the September meeting, leaving the benchmark rate at a range between 1.75 percent and 2.00 percent at the end of the third quarter. FOMC officials would vote to lower rates once more in October, dropping the benchmark rate to a range of 1.50 percent to 1.75 percent at year-end 2019.

On March 3, 2020, the Federal Reserve executed an unscheduled rate cut of one-half of a percentage point, reducing the federal-funds rate to a range between 1 percent and 1.25 percent. This was the first-rate change made in between scheduled FOMC meetings since the financial crisis of 2008, as the Fed moved to prevent a pullback in credit availability that could amplify a slowdown in U.S. growth caused by the COVID-19 pandemic. The Fed instituted another emergency rate cut on March 15, cutting the benchmark interest rate by an additional 100 basis points to a range of 0 percent to 0.25 percent. This was the second emergency rate cut in as many weeks, an unprecedented action by the FOMC. In addition, the Fed announced that it would buy $700 billion in Treasury and mortgage-backed securities in response to the COVID-19 pandemic.

With interest rates cut virtually to zero, the Fed relied on new lending programs in the second quarter of 2020 to stimulate the U.S. economy. On April 9, the Fed announced three new emergency lending facilities to implement the relief provided by the CARES Act and support the work of the Treasury Department and the Small Business Administration. These new lending facilities included the following:

- Paycheck Protection Program Lending Facility, which will purchase PPP loans from banks, allowing banks to continue to lend freely under the PPP program and remove these non-performing loans from bank balance sheets.
- Main Street Businesses Lending Program, which will purchase $600 billion in debt from businesses employing less than 10,000 workers or having fewer than $2.5 billion in revenues. Any required payments on these loans will be deferred for a year.
- Municipal Liquidity Facility, which will purchase $500 billion in debt from states and cities with populations over 1 million.

In addition, the Fed announced the expansion of the Primary and Secondary Corporate Market Credit Facilities and the Term Asset-Backed Securities Loan Facility to support up to $750 billion in credit purchases.

During FOMC meetings in the third quarter of 2020, the Fed reiterated its commitment to support the economy through aggressive monetary policy. Though no new policy steps or programs were announced during the third quarter, the FOMC voted to leave rates unchanged in a range between 0 percent and 0.25 percent at its July and September meetings. New language from the FOMC signaled a shift away from the Fed's longtime strategy of pre-emptively lifting rates to head off higher inflation. To summarize, the FOMC will now wait for inflation to increase above 2 percent for several periods before considering raising the benchmark rate, a goal termed as "symmetric inflation targeting." The FOMC had previously used the benchmark rate as a mechanism to keep inflation low. The FOMC met in November and December during the fourth quarter of 2020. While no new policy was enacted during these meetings, the Fed did clarify its plan for long-term support for the economy in an FOMC statement following the December meeting. The FOMC met in January and March 2021 and at both meetings pledged to keep its current expansionary monetary policies in place until the U.S. economy fully recovers from the effects of the COVID-19 pandemic.

Of note, Fed officials did signal at the March meeting that they expect the economy to recover more quickly than previously thought according to new projections released in conjunction with the March meeting. Despite this expectation, only seven of the eighteen members of the FOMC anticipate raising rates in 2022 or 2023, which is up from five members in December 2020.

During the second quarter of 2021, the FOMC met in April and June. At the April 28 meeting, Fed officials voted unanimously to maintain the central bank's current policies as the economy continues to mend from the effects of the pandemic. In a statement following the April meeting, Fed officials commented on the ongoing recovery and rising inflation in 2021: "Amid progress on vaccinations and strong policy support, indicators of economic activity and employment have strengthened. The sectors most adversely affected by the pandemic remain weak but have shown improvement. Inflation has risen, largely reflecting transitory factors." The FOMC met again in June, where committee members and Chairman Powell changed their tone in regard to the timing of interest rate increases. FOMC officials signaled that they expected to raise interest rates by late 2023 after the June meeting, which is earlier than they had anticipated following previous meetings in 2021. Fed officials also indicated that they expected an eventual tapering of the central bank's bond-buying program, though the timing of this winding down remained uncertain. Chairman Powell stated that many Fed officials believe that the economy will reach the Fed's goals of "maximum employment" and sustained inflation at 2 percent sooner than previously anticipated in his statement following the June meeting, excerpts of which can be found below:

The Fed's policy actions have been guided by our mandate to promote maximum employment and stable prices for the American people, along with our responsibilities to promote the stability of the financial system. As the Committee reiterated in today's policy statement, with inflation having run persistently below 2 percent, we will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent…. As is evident in the SEP, many participants forecast that these favorable economic conditions will be met somewhat sooner than previously projected; the median projection for the appropriate level of the federal funds rate now lies above the effective lower bound in 2023. Of course, these projections do not represent a Committee decision or plan, and no one knows with any certainty where the economy will be a couple of years from now. More important than any forecast is the fact that, whenever liftoff comes, policy will remain highly accommodative. Reaching the conditions for liftoff will mainly signal that the recovery is strong and no longer requires holding rates near zero.

Summary and Outlook

The COVID-19 pandemic adversely affected nearly every facet of the U.S. economy during 2020, but the economy continued to show signs of stabilizing in the fourth quarter of the year and the first half of 2021. This trend continued into the third quarter of 2021. The unadjusted CPI increased 0.4 percent in September 2021 and increased 5.4 percent from September 2020 to September 2021. Core CPI increased 0.2 percent in September 2021 and 4.0 percent over the prior twelve months.

The Dow Jones Industrial Average, NASDAQ, and broad market Wilshire 5000 posted slight losses in the third quarter of 2021, while the S&P 500 remained essentially unchanged. The indices all posted month-over-month gains in July and August before falling back in September. Investors anticipated slower gains and more persistent volatility in

markets based on a number of factors including global central banks' perceived willingness to wind down pandemic induced stimulus programs.

Prior to the disruption caused by the pandemic, the unemployment rate had remained stable for several months in the range of 3.5 percent to 4.0 percent, continually nearing all-time lows. The unemployment rate was 4.8 percent in September 2021. The unemployment rate has consistently fallen month-over-month since peaking at 14.7 percent in April 2020. Labor force participation remains low relative to historic levels at 61.6 percent.

Following the deep contraction in GDP in the second quarter of 2020 and subsequent rebounds in GDP in the past four quarters, economists expect the recovery to continue in future quarters. A survey of economists conducted by The Wall Street Journal reflects an average GDP forecast of 7.0 percent annualized growth in the third quarter of 2021, followed by 5.4 percent annualized growth in the fourth quarter. GDP declined 3.4 percent in 2020 compared to annual GDP growth of 2.3 percent and 2.9 percent in 2019 and 2018, respectively. Economists anticipate an annualized growth in GDP of 5.2 percent for the whole of 2021.

INDUSTRY OVERVIEW

Stock & Commodity Exchanges in the US[6]

INDUSTRY DEFINITION

This industry is composed of financial intermediaries that provide physical trading floors or electronic marketplaces where buyers and sellers arrange trades in securities, commodities and related contracts. This report includes a discussion of exchanges and alternative trading systems, as well as broker-dealers that match trades of securities in off-exchange transactions. It excludes a discussion of the trading of debt securities, currencies, real assets and physical commodities.

EXECUTIVE SUMMARY

The Stock and Commodity Exchanges industry has remained a vital part of the Finance and Insurance sector (IBISWorld report 52), especially as trade volumes have increased over the five years to 2021. Industry operators act as intermediaries and provide physical trading floors or electronic marketplaces where buyers and sellers arrange trades in securities, commodities and related contracts. Exchanges facilitate the transfer of assets between market participants in different locations and with various timeframes.

Total trade volumes have increased over the five years to 2021, which has helped industry revenue grow during the period. For example, the daily trade volume processed by the Intercontinental Exchange Inc. (ICE) has increased an annualized 9.5 percent over the five years to 2021. This has enabled industry operators to generate more in transaction and clearing fees, which is the largest source of revenue for

[6] *IBISWorld: Stock & Commodity Exchanges in the US Report 52321, December 2021.*